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Tera-node Network Technology (TASK 4)

Network Infrastructure Activities (NIA)

FINAL REPORT

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Network Infrastructure Activities (Final Report)

A. INTRODUCTION

During the reporting period, which started 1 April 1997 and ended 31 March 1998, the USC/ Information Sciences Institute performed several Internet coordination and management tasks, such as acting as the Internet Assigned Numbers Authority (IANA) and editing the Internet Request For Comments (RFC) series. This report describes the details of these Internet coordination and management activities.

There are four task areas covered by this report:

IANA: The parameter assignment, address management, and domain name system supervision.

RFC Editor: The document preparation and online access management.

IMR: The preparation and online access management of the Internet Monthly Report (IMR).

User Services: management of the User Services Area of the Internet Engineering Task Force (IETF), including participation on the Internet Engineering Steering Group (IESG) as the Area Director.

B. ACCOMPLISHMENTS

ISI contributed to the administration of the Internet by operating the Internet Assigned Numbers Authority (IANA), acting as the RFC Editor, publishing the Internet Monthly Report (IMR), and coordinating the User Services area of the IETF. These separate activities are often referred to colloquially as "IANA activities". However, IANA is a separate function from RFC Editor, IMR, and User Services. Furthermore, working with the guidance of the US Government and other advisory organizations, ISI worked towards the establishment of the Internet Corporation for Assigned Numbers and Names (ICANN).

It should be noted that this relatively small effort has grown very slowly as the Internet has grown very rapidly. In a sense this is a demonstration of the scaling features of the Internet in the core network infrastructure parameters and their management. In the future even more dramatic growth is expected and these scaling features will be significantly stress tested. New methods for even more distributed management of the core network infrastructure parameters must be implemented.

1. Internet Assigned Numbers Authority (IANA)

The administration of protocol standards requires the assignment of unique values to numerous parameters (operation codes, types, object identifiers, names, and numbers) used in the various protocols. Since these must be unique, one place must make the assignments (at least to the top levels), and make the assignments known to the protocol developers. Specifically, the IANA function at ISI performed the following tasks:

Processed requests received for the allocation of various parameters (including, but not limited to, top-level domain names [including country codes], IP address blocks, protocol and port numbers). Managed the parameter lists to avoid duplication, conflicts, and obsolescence.

Provided general guidance for the Internet address registries, and performed the top-level allocation of major address blocks to those registries. Consulted frequently with registries to coordinate activities and understand their end their clients' evolving requirements.

Provided general guidance in the allocation of top-level domain names, and the root servers. Maintained the list of root servers and the root zone file. Operated the Domain Name System (DNS) root servers B and L. Performed backup and upgrades on root servers B and L.

Maintained an up-to-date public listing of the assigned parameters accessible via appropriate on-line methods. Developed automated registration for routine cases. Developed and maintained the IANA Web site (<http://www.iana.org>), used as the first-contact interface to the general public. Provided telephone, email, and mail interfaces to the general public.

In accordance with the goals of the Internet community and Internet and government organizations, IANA has worked towards the transition of its functions to the Internet Corporation for Assigned Numbers and Names (ICANN). IANA has worked with legal organizations to incorporate ICANN formally as a California not-for-profit corporation. IANA has participated in public and private meetings to provide information on the functions it provides and has given advice on how best to effect a smooth, orderly transition. As of January 1999, ICANN has been solely responsible for the assignment and management of names and numbers in the Internet.

2. RFC Editor

The RFC Editor prepares documents for publication as RFCs. These documents include the protocol standards developed by the IETF, specifications of experimental protocols, and other informational and procedural reports. Specifically, the RFC Editor function at ISI performed the following tasks:

Processed documents to become RFCs as submitted by the Internet Engineering Steering Group (IESG) and by the Internet community.

Maintained an on-line repository of RFCs.

Maintained an up-to-date index to the RFCs.

Developed appropriate on-line methods of making the RFCs available. Developed and maintained the RFC Editor Web site (<http://www.rfc-editor.org>), used as the first-contact interface to the general public. Provided telephone, email, and mail interfaces to the general public and RFC authors.

Authored special informational RFCs used by the Internet community.

3. Internet Monthly Report

The Internet Monthly Report (IMR) is an on-line report widely circulated to report status information about various projects and regional networks in the Internet. Specifically, the IMR function at ISI performed the following tasks:

Produce the IMR on a monthly basis.

Distributed by email and Web (<http://info.internet.isi.edu:80/in-notes/imr>) the IMR.

4. User Services

The User Service Area of the IETF develops information for trainers, teachers, and help-desk consultants. That is, the focus is on services for the second level -- one step removed from the end users. The User Services Area has about 10 working groups, and under this task the Area chair coordinates the activities of these working groups, and creates new groups or closes down old groups as the situation warrants. Specifically, the User Services function at ISI performed the following tasks:

Managed the Working Groups in the User Services area of the IETF.

Reported on the results of the User Services Area working groups.

C. PROJECT PERSONNEL

The following ISI employees participated on the project at some time during the reporting period.

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